

CLAIMS

1. A method for transferring data in a wireless communications system over a wireless interface between a radio network and a user equipment node (UE), including the steps of establishing a communication with the UE having at least one data flow and receiving at a medium access control layer data units from a higher radio link control layer, the method characterized by the further steps of:

analyzing at the medium access control layer some or all of a header of a radio link control data unit associated with the one data flow;

based on the analysis, determining at the medium access control layer a priority of the data unit relative to other data units associated with the one data flow; and

scheduling at the medium access control layer transmission of higher priority data units associated with the one data flow before lower priority data units associated with the one data flow.

2. The method in claim 1, wherein the analyzing step includes determining the priority based on radio link control data unit header information that does not explicitly indicate a priority for the data unit.

3. The method in claim 1, wherein the determining step further comprises:

determining whether the data unit is a control type of data unit or a data type of data unit, and

determining the priority based on the determined data unit type.

4. The method in claim 1, wherein the determining step further comprises:

prioritizing retransmission of a previously-transmitted data unit associated with the one data flow over an original transmission of a data unit associated with the one data flow.

5. The method in claim 1, wherein the determining step further comprises:

determining a sequence number for the data unit,
and

determining the priority based on the determined sequence number.

6. The method in claim 5, wherein the determining step further comprises:

determining a highest sequence number of multiple data units associated with the one data flow, and

determining which of the other data units associated with the one data flow is a retransmission based on the determined highest sequence number.

7. The method in claim 6, wherein the determining step further comprises:

taking into account a modulo sequence numbering in determining which data units are retransmissions.

8. The method in claim 2, wherein the determining step further comprises:

determining a type of control data unit, and
determining the priority based on the determined type of control data unit.

9. The method in claim 2, further comprising:
storing data units associated with the one data flow in a memory at the medium access control layer so that higher priority data units are accessed for transmission before lower priority data units.

10. The method in claim 9, further comprising:
removing duplicate data packets from the memory.

11. The method in claim 9, wherein the analysis further comprises:
analyzing information in a payload portion of the radio link control data unit.

12. The method in claim 11, wherein the determining step further comprises:

if a polling bit is set in a first data unit associated with the one data flow, setting the polling bit in the header of a second data unit associated with the one data flow with a priority higher than that of the first data unit.

13. The method in claim 1, wherein the radio network includes a node B coupled for communication with a

radio network controller (RNC), and wherein the higher radio link layer is a radio link control (RLC) layer implemented in the RNC and the medium access control layer is a high speed-downlink shared channel (HS-DSCH) medium access control layer implemented in the node B.

14. The method in claim 13, wherein the method does not rely on priority-specific signaling from the RNC to the node B to perform the determining step.

15. A node in a radio network for use in facilitating a communication including at least one data flow over a wireless interface with a user equipment node (UE), where the node includes a medium access controller for receiving data units from a higher radio link controller included in a radio network controller (RNC), the medium access controller being further characterized by:

means for analyzing some or all of a header of a radio link control data unit associated with the one data flow;

means for determining, based on the analysis, a priority of the one data unit relative to other data units associated with the one data flow; and

means for scheduling transmission of higher priority data units associated with the one data flow before lower priority data units associated with the one data flow.

16. The node in claim 15, wherein the means for analyzing includes means for determining the priority based on radio link control data unit header information that does not explicitly indicate a priority for the data unit.

17. The node in claim 15, wherein the means for determining is configured to:

determine whether the data unit is a control type of data unit or a data type of data unit, and

determine the priority based on the determined data unit type.

18. The node in claim 15, wherein the means for determining is configured to:

prioritize retransmission of a previously-transmitted data unit associated with the one data flow over an original transmission of a data unit associated with the one data flow.

19. The node in claim 15, wherein the means for determining is configured to:

determine a sequence number for the data unit,
and

determine the priority based on the determined sequence number.

20. The node in claim 19, wherein the means for determining is configured to:

determine a highest sequence number of multiple data units associated with the one data flow, and

determine which of the other data units associated with the one data flow is a retransmission based on the determined highest sequence number.

21. The node in claim 20, wherein the means for determining is configured to:

take into account a modulo sequence numbering in determining which data units are retransmissions.

22. The node in claim 16, wherein for a control type of data unit, the means for determining is configured to:

determine a type of control data unit, and
determine the priority based on the determined the type of control data unit.

23. The node in claim 16, further comprising:
means for storing data units associated with the one data flow at the medium access control layer so that higher priority data units are accessed for transmission before lower priority data units.

24. The node in claim 23, wherein the means for analyzing is configured to:

analyze information in a payload portion of the radio link control data unit.

25. The node in claim 24, wherein the means for determining is configured to:

determine if a polling bit is set in a first data unit associated with the one data flow, and

if so, set the polling bit in the header of a second data unit associated with the one data flow with a priority higher than that of the first data unit.

26. The node in claim 15, wherein the node is a node B and the medium access control layer is a high speed-downlink shared channel (HS-DSCH) medium access control layer implemented in the node B.

27. The node in claim 26, wherein the means for analyzing and means for determining do not rely on priority-specific signaling from the RNC to the node B.

28. A mobile radio communications system including the node in claim 15.